SANDAKANIA 18 (2012): 15–32

A synopsis of *Rothmannia* (Rubiaceae) in the Philippines, with four new combinations and a new species

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Summary. Four new combinations are made for Philippine *Rothmannia*: *R. graciliflora* (Merr.) J.T. Pereira & Ridsdale, *R. lagunensis* (Merr.) J.T. Pereira & Ridsdale, *R. merrillii* (Elmer) J.T. Pereira & Ridsdale, and *R. negrosensis* (Merr.) J.T. Pereira & Ridsdale. A new species, *R. leytensis* J.T. Pereira & Ridsdale is also described.

Rothmannia Thunb. was named after Dr Georgius Rothman (1739–1778), a Swedish physician and botanist in 1776. It is typified by *Rothmannia capensis* from Cape, South Africa. In 1781, this species was transferred to the genus *Gardenia,* under the name *G. rothmannia* L.f.*,* by Linneaus in the *Supplementum Plantarum Systematis Vegetabilium*. Many other conceptual changes have since occurred, notably with a number of other Gardenieae entities variously mixed up with *Gardenia* s.l. or *Randia* s.l., including taxa best placed within or close to the *Rothmannia* group.

The taxonomic history of this alliance of genera, and that of *Rothmannia* in particular, is complex (Pereira, Lim & Wong, in prep.). Whether or not *Rothmannia* s.l. is best considered an heterogeneous pantropical assemblage as in the case of *Randia* s.l., or if it is a large complex genus with incipient specialisation in different directions, requires more insight (see also concepts considered by Fagerlind 1943, Bremekamp 1957, Keay 1958; Wong 1984, 1989; Bridson & Verdcourt 1988), particularly from molecular phylogenetic work (Pereira 2008). Nevertheless nearly all members of the *Rothmannia* group, particularly in Asia, are easy to recognise by a characteristic vegetative character: the sympodially

developing branch unit of two nodes occurring very close together, in which one member of a leaf pair is vestigial and the other leaf pair normally developed, so that trifoliate leaf clusters result. This feature, together with terminal flowers either solitary or in small cymes that are later displaced to one side during sympodial branch development, and berry-like, indehiscent fruits of medium to large size (2–5 cm or more across) that are 2-loculate with axile placentation and many seeds immersed in a pulp-like tissue, sets the group apart from other genera formerly confused with either *Gardenia* or *Randia* s.l.

Rothmannia strictly applies to a coherent group comprising the African type species and a number of other species in Africa that also have right-contorted corolla lobes. However, morphological and palynological studies have found difficulty in placing the other African members with left-contorted corolla lobes truly apart from Asian members of the *Rothmannia* group (Pereira, 2008). In brief, although the taxonomic limits of *Rothmannia* are still being investigated, it is still the most practical grouping for an entire suite of Asian taxa.

Rothmannia s.l. in the Philippines

Unlike elsewhere in Asia (e.g., Bremekamp 1957, Wong 1984, Coode et al. 1996, Shui et al. 2003), the recognition of *Rothmannia* has not yet been adopted for a number of relevant Philippine taxa. In fact, the baseline account for a great many Philippine plant groups is the *Enumeration of Philippine Flowering Plants* by Merrill (1923), and likewise, a number of names placed under *Gardenia* do not apply to that genus as recently revised by Wong & Low (2011).

Here we transfer four names under *Gardenia* or *Randia* to *Rothmannia*, where they are more correctly placed. In addition, a new species is also described.

KEY TO PHILIPPINE *ROTHMANNIA*

1. Calyx glabrous to scantily puberulous, the hairs if present, very minute and scattered (detectable only with ×10 magnification) on the surface 2
   Calyx conspicuously (sparsely to densely pubescent) hairy on the surface, hairs *c*. 0.5 mm long, visile to the unaided eye 3

2. Leaf apex acuminate, acumen to 1 cm long; tertiary venation a much-branched network between secondary veins. Corolla throat glabrous inside; lobes 5, slender, 1–1.5 × 0.25–0.3 cm; tube pubescent at the upper half of the outer surface. Style and stigma included but reaching just below the corolla mouth and the level of or above the anthers ..... **2. *R. lagunensis***

Leaf apex acute to obtuse, acumen to 0.3 cm long only; tertiary venation visible as simple connections between secondary veins to almost invisible. Corolla throat hairy inside; lobe typically 6–8, rarely 5, larger 2–4.5 × 0.5–1.5 cm; tube glabrous on the outer surface. Style and stigma included but reaching less than 2/3 way along the corolla tube and well below the level of the anthers ..... **3. *R. merrillii***

3. Inflorescences laxly arranged, with 2–3 distinct branching orders. Corolla tube short, below 2.5 cm long ..... **1. *R. graciliflora***
Inflorescences compact, with 1–2 distinct branching orders. Corolla tube longer, 6–9 cm long 4

4. Leaves tertiary venation visible as simple connections between secondary veins. FLowers 2–3 per cyme. Corolla lobes typically 6–8, rarely 5, large, 2.7–4.5 × (1.5–)1.8–2.5 cm; throat with hairy zone covering part or all the tube from the corolla mouth downwards ..... **4. *R. negrosensis***
Leaves tertiary venation a much-branched network between secondary veins. Flowers 4–9 per cyme. Corolla lobes 5, smaller, 1.2–2.5 × 0.4–0.9 cm; throat glabrous ..... **5. *R. leytensis***

Four new combinations in *Rothmannia*

1. *Rothmannia graciliflora* (Merr.) J.T. Pereira & Ridsdale, **comb. nov.**

Randia graciliflora Merr., Philipp. J. Sci., C 10 (1915) 109; Merr., Enum. Philip. Fl. Pl. 3 (1923) 527. LECTOTYPE (here designated): *Miranda* F.B. 17988, Philippines, Mindanao, Misamis, Mt Malindang (January–February 1913 FLO) (US!) (isolectotypes L! P! SING! NY!).

Gardenia negrosensis sensu Merr., Philip. Fl. Pl. 3 (1923) 527 pro parte quoad *Ramos & Edaño B.S.* 36787; non Merr. (1915).

Tree, to 18 m high. Twigs pubescent when young, becoming glabrescent when old. Branch leaves typically in groups of 3's, each trifoliate group based on a distal node with only one leaf normally developed (the other vestigial or very much reduced in size), and the proximal node with a pair of normal leaves. Stipules triangular, 3 × 5 mm long, 4 × 7 mm wide, sparsely pubescent outside; apex acuminate, 0.5–1 mm long. Young l**eaves** on shoot tips pubescent on both sides. Mature leaves with petiole 0.1 × 0.4 cm long, 1 × 1.5 mm thick, pubescent; lamina elliptic, obovate to oblanceolate, 12 × 16(–24) cm long, 3.5 × 7(–9) cm wide, upper surface sparsely pubescent when young, becoming glabrescent when mature, lower surface sparsely pubescent; leaf base cuneate, symmetric to unequal; leaf apex acuminate, acumen 0.4 × 1 cm long; chartaceous when dry; midrib on upper side flat,

glabrous to sparsely pubescent, on lower side raised, pubescent; secondary veins 7 × 10(–13) pairs, on upper side flat, glabrous to glabrescent, on lower side raised, pubescent; tertiary venation visible as a much-branched network between pairs of secondary veins. **Inflorescences:** peduncle 0.3 ×1 cm long, 1 × 2 mm thick, pubescent; habit laxly arranged, with 2 × 3 distinct branching orders, rachis 1.2 × 2.5 cm long, primary branches along the rachis 2–3 pairs, 0.5 × 1 cm long; bracts ovate, 1.5 × 2.5 mm long, 1.5 × 2 mm wide, pubescent. Flowers 11 × 25 per cyme; pedicels subobsolete to 1 mm long, *c*. 1 mm thick; calyx tube 3.5 × 4 mm long, 2 × 3 mm wide, sparsely pubescent at the limb but densely pubescent at the hypanthium, hairs suberect, surface visible; calyx limb cup-shaped; calyx lobes 5, narrowly triangular, 0.5 × 2 mm long, sparsely pubescent; corolla hypocrateriform, the tube 1.8 × 2.4 cm long, bulging at the upper half, 2 × 2.5 mm wide at the throat, 1 × 1.5 mm wide at the base; non-speckled inside, outer surface pubescent, inner surface glabrous; corolla lobes 5, narrowly elliptic, 0.6 × 0.9 cm long, 0.15 × 0.2 cm wide, outside sparsely pubescent on the uncovered half of the lobes, inside glabrous; anthers 5 × 6, fully included within the tube (inserted at the upper $^1/_3$), 6 × 7 mm long; style and stigma 6 × 10 mm long, included but reaching less than $^2/_3$ along the corolla tube, and well below the anthers, style smooth, glabrous. **Immature fruits** globose, 2 × 2.8 cm long, 2 × 2.5 cm wide, glabrescent to glabrous, drying smooth; fruit wall *c*. 1 mm thick; peduncle 0.5 × 1.5 cm long, 0.2 × 0.3 mm thick. Seeds not seen.

NOTES. In the original publication of Merrill in the *Philipp. J. Sci., C* 10 (1915) 109, there is only one specimen cited which is the type specimen for the species. However, the holotype specimen which was in PNH (as Merrill had worked there), was destroyed, hence, one of the isotypes is designated the lectotype (Article 9, paragraph 9.2 of the International Code of Botanical Nomenclature, Vienna Code 2006).

DISTRIBUTION. Thus far only known from 5 collections, recorded from the southern part of the Philippines (Mindanao and Basilan).

SPECIMENS EXAMINED—PHILIPPINES. MINDANAO: Zamboanga, *Villamil* 21884 A (May–June 1914 FRU) (K!), *Babaran* 26139 (July 1916 FRU) (K! P!); Malangas, *Ramos & Edano* 36787 (October–November 1919 FRU) (L!), Misamis, Mt. Malindang, *Miranda* 17988 (January–February 1913 FLO) (lectotype US!) (isolectotypes L! P! SING!). Basilan, *Tecson & Rouve* 25804 (May 1916 FRU) (K!).

2. *Rothmannia lagunensis* (Merr.) J.T. Pereira & Ridsdale, **comb. nov.**

Gardenia lagunensis Merr., Philip. J. Sci., C 10 (1915) 110; Enum. Philip. Fl. Pl. 3 (1923) 530. NEOTYPE (here designated): *Ramos* Bur. Sci. 14934, Philippines, Luzon, San Antonio Province, Laguna (June 1912) (L!).

Tree, to *c*. 25 m high, to 35 cm diameter. Bark smooth, grey-black; inner bark light brown. Twigs pubescent when young, becoming glabrescent to glabrous when old. Branch leaves typically in groups of 3's, each trifoliate group based on a distal node with only one leaf normally developed (the other vestigial or very much reduced in size), and the proximal node with a pair of normal leaves. Stipules ovate, 2 × 3 mm long, 3 × 5 mm wide, glabrous outside; apex acute, to 1 mm long. Young **leaves** on shoot tips pubescent on both sides. Mature leaves with petiole 0.5 × 1.1 cm long, 1 × 1.5 mm thick, glabrous to scantily puberulous; lamina oblanceolate, lanceolate to elliptic, 6 × 12(–13.5) cm long, 2 × 6 cm wide, upper surface glabrous, lower surface scantily pubescent becoming glabrous; leaf base cuneate, attenuate, equal to unequal; leaf apex acuminate, acumen to 1 cm long; thin-coriaceous when dry; midrib on upper side flat, scantily puberulous to pubescent, on lower side raised, glabrous; secondary veins 5 × 6(–7) pairs, on upper side flat, glabrous, on lower side slightly raised, scantily puberulous to pubescent; tertiary venation visible as a much-branched network between pairs of secondary veins. **Inflorescences** (bud): peduncle subsessile to 0.5 cm long, 1 × 1.5 mm thick, glabrous; habit compact, unbranched or with 1(–2) distinct branching orders, rachis 0.2 × 0.5 cm long, primary branches along the rachis 1 pair, 0.2 × 0.5 cm long; bracts ovate, 1.5 × 2 mm long, 1.5 × 2 mm wide, glabrous, hairy along the margin. Flowers in buds 1 × 3(–5) per cyme; pedicels subobsolete to 1 mm long, 1 × 1.5 mm thick; calyx tube 4 × 6 mm long, 3.5 × 4.5 mm wide, scantily puberulous to pubescent, hairs appressed, surface visible; calyx limb cup-shaped; calyx lobes 5, triangular, 1 × 1.5 mm long, scantily puberulous; corolla hypocrateriform, the tube 7 × 8 cm long, *c*. 3 mm wide at the throat, *c*. 1.5 mm wide at the base; non-speckled inside, outer surface scantily puberulous at the upper half, inner surface glabrous; corolla lobes 5, oblong, 1 × 1.5 cm long, 0.25 × 0.3 cm wide, glabrous or with minute hairs sparsely distributed at the margin or fringes of the lobes outside, glabrous inside; anthers 5, fully included within the tube or only with tips slightly protruding (inserted at the upper 1/3), 12 × 14 mm long; style and stigma 75 × 85 mm long, included but reaching just below the corolla mouth and the level of or above of the anthers, style smooth, glabrous. **Fruits** globose to ellipsoid, 2.5 × 3.5(–5) cm long, 2.5 × 4 cm wide, glabrous, drying typically smooth; fruit wall *c*. 1 mm thick; peduncle 0.4 × 0.5 cm long, 2 × 3 mm thick. Seeds slightly to much flattened and broadly ovate or suborbicular to narrowly triangular, 8 × 10 mm × 6–7 mm.

NOTES. Merrill (in the *Philipp. J. Sci., C* 10 (1915) 110) had designated the collection *C.F. Baker* 3176 as the type specimen of the basionym, *Gardenia lagunensis*. However, the holotype of this collection which was deposited in PNH had been destroyed during the Second World War. Attempts were made to locate isotypes from the herbaria at POM and NY, where C.F. Baker's collections were normally deposited (Stafleu & Cowan, 1976), but were futile. The search continued to other herbaria in the United States, e.g., UC and A, but was again futile. Based on Article 9, paragraph 9.6 of the International Code of Botanical Nomenclature, Vienna Code (2006), a neotype was designated.

DISTRIBUTION. Known only from Luzon island of the Philippines.

HABITAT. Recorded in Mixed Dipterocarp forest, to 300 m.

SPECIMENS EXAMINED—PHILIPPINES. LUZON: Linutan, *Loher* 1481 A (sine datum FLO) (K!), Montalban, *Loher* 1482 A (sine datum FLO) (K!); Camarines Sur, *Alambra* F.B. 28093 (July 1920 FLO) (K!); Quezon National Park, 25 km E of Lucena, 200–300 m, *Soejarto* et al. 7828 (12 July 1992 FRU) (L!); Tayabas, *Bawan* F.B. 24936 (December 1915 FRU) (P!); Laguna, *Conicosa F.B. 29461* (August 1923 FRU) (A!), *Ramos* 1401 (February 1913 FRU) (L! SING!); Rizal, *Ramos* 2635 (May 1907 FRU) (BO! L!); Mt Susong-Dalaga, *Ramos & Edano* Bur. Sci. 29392 (August, 1917 FRU) (K!); San Antonio, *Ramos* Bur. Sci. 14934 (June 1912 FRU) (neotype L!), *Ramos* Bur. Sci. 23845 (October 1915 FRU) (A!); Angat, *Ramos* Bur. Sci. 22297 (December 1914 FLO) (A! L! PNH! SING!).

3. *Rothmannia merrillii* (Elmer) J.T. Pereira & Ridsdale, **comb. nov.**

Gardenia merrillii Elmer, Leafl. Philipp. Bot. 1 (1906) 5; Leafl. Philipp. Bot. 4 (1912) 1330; Gibbs, Journ. Linn. Soc. Bot. 42 (1914) 94; Merr., Enum. Philip. Fl. Pl. 3 (1923) 530; Merr., Philipp. J. Sci. 29 (1926) 421, pro parte excl. Celebes specimens; Merr., Bibl. En. Born. Pl., J. Straits Branch Roy. Asiat. Soc., Sp. No. (1921) 564 pro parte quoad *Gibbs* 4340, *Foxworthy* 600; Masamune, En. Phan. Born. (1942) 682. LECTOTYPE (here designated): *Merrill* 669, Philippines, Island of Calomian, Culion (February 1903 FLO) (lectotype US!) (isolectotypes A! SING! NY!).

Randia keithii C.E.C. Fisch., Bull. Misc. Inform. Kew (1932) 180; Masamune, En. Phan. Born. (1942) 708. *Rothmannia keithii* (C.E. Fischer) Bremek., Proc. K. Ned. Akad. van Wet.–P 60 (1957) 6. TYPE: *Keith* 1215, North Borneo, Sandakan, 500 ft [152 m] (20 February 1929 FLO) (holotype K!).

Treelet to small tree, to 6(–12) m high, to 10 cm diameter. Bark smooth to finely fissured, grey-black to dark brown; inner bark brownish to greenish yellow. Sapwood whitish to white-orange. Twigs glabrous. Branch leaves typically in groups of 3's, each trifoliate group based on a distal node with only one leaf normally developed (the other vestigial or very much reduced in size), and the proximal node with a pair of normal leaves. Stipules shortly ovate-triangular, 1 × 3 mm long, 3–5(–6) mm wide, glabrous to sometimes scantily pubescent outside; apex cuspidate, 0.5 × 1 mm long. Young **leaves** on shoot tips scantily pubescent, especially on the lower surface. Mature leaves with petiole (0.1–)0.3 × 1.3 cm long, 1 × 1.5 mm thick, glabrous to scantily puberulous; lamina narrowly to broadly elliptic, elliptic-oblong, oblanceolate to obovate, 5 × 20 cm long, (1.5–)4–8(–10) cm wide, upper surface glabrous, lower surface typically glabrous, sometimes sparsely puberulous; leaf base attenuate, cuneate to sometimes unequal; leaf apex acute to obtuse, acumen to 0.3 cm

long; thin to thick-coriaceous when dry; midrib on upper side flat, glabrous, on lower side raised, glabrous to occasionally scantily puberulous; secondary veins 5 × 8(–9) pairs, on upper side flat, glabrous, on lower side raised, glabrous to occasionally puberulous; tertiary venation visible as simple connections between pairs of secondary veins to almost invisible. **Inflorescences:** peduncle 0.15 × 0.5 cm long, 2 × 3 mm thick, glabrous to sparsely puberulous; habit compact, unbranched to with 1(–2) distinct branching orders, rachis 0.1–0.5 cm long, primary branches along the rachis 1(–2) pairs, 0.1–0.5 cm long; bracts ovate, 1 × 2.5 mm long, 1 × 2 mm wide, glabrous to sparsely puberulous. Flowers 1 × 5(–9) per cyme; pedicels subobsolete to 1 mm long, *c*. 1 mm thick; calyx tube 4 × 6(–10) mm long, 3 × 6 mm wide, glabrous to scantily puberulous, hairs appressed, surface visible; calyx cup-shaped; calyx lobes (5–)6 × 8(–10), short-triangular, 0.5 × 2.5 mm long, glabrous to sparsely puberulous; corolla hypocrateriform, white, the tube 3.5 × 7.5(–12) cm long, 5 × 9 mm wide at the throat, 2 × 3 mm wide at the base; non-speckled inside, outer surface glabrous, inner surface with hairy zone covering part or all of the tube from the corolla mouth downwards; corolla lobes (5–)6 × 8, lanceolate, oblong-elliptic to obovate, 2 × 4.5 cm long, 0.5 × 1(–1.5) cm wide, outside glabrous or with minute hairs sparsely distributed at the margin or fringes of the lobes, inside glabrous; anthers 6 × 10, fully included within the tube (inserted at the upper $^{1}/_{3}$), 6 × 10 mm long; style and stigma 10 × 34 mm long, included but reaching less than $^{2}/_{3}$ way along the corolla tube and well below the level of the anthers, style smooth, glabrous. **Fruits** globose, 2.5 × 4.5(–5) cm long, 2.5 × 4.5(–5) cm wide, glabrous, drying smooth to wrinkled; fruit wall 1 × 2 mm thick; peduncle sessile to 0.3 cm long, 2 × 4 mm thick. Seeds slightly to much flattened and broadly ovate or suborbicular to narrowly triangular, 10–11 mm × 8–10 mm.

NOTES. In 1906, Elmer published the basionym, *Gardenia merrillii* in *Leafl. Philipp. Bot.* 1, pg. 5 and cited two specimens, *Merrill* 669 from Culion, collected in February 1903 and *Garcia* FB 1226 from Mindoro, collected in January 1903. As there was no clear type designated, one of the two syntypes is designated lectotype. Because most of Merrill's material that was mainly deposited at the Philippine National Herbarium (PNH) was probably destroyed during the Second World War (Van Steenis-Kruseman, 1950), one of the duplicates of *Merrill* 669 is chosen for the lectotype specimen (Article 9, paragraph 9.2 of the International Code of Botanical Nomenclature, Vienna Code 2006).

This species is very variable in terms of leaf size; corolla tube length; hairiness on the nerves (glabrous to pubescent), peduncle (glabrous to pubescent), bracteoles (glabrous to pubescent), domatia (glabrous to pubescent) and number of flowers per cyme. The Sabah specimens tend to have fewer flowers, usually 1, rarely 3 per cyme. However, the Philippine specimens vary from solitary flowered to 3–5-flowered. The flowers are commonly arranged as 3–5 flowers per cyme, to a maximum of 9 flowers. Furthermore, the corolla tube length typically varies from 3.5 cm to 7.5 cm long, however, in one specimen collected by Ridsdale, from Palanan, N.E. Luzon (ISU 93): the corolla tube is extremely long 10–12 cm long.

VERNACULAR NAMES. Sabah: *kelimpong* (Kudat); *sarakat* (Dusun-Rungus); *cempaka putih* (Malay). Philippines: *rosal-gobat* (Mindoro); *Bagaoi, niogniog* (Bisaya).

DISTRIBUTION. Endemic to the Philippines and Borneo (Sabah).

HABITAT. Primary to secondary forests, including *kerangas* forest, sandstone hills, coastal forest and on ultrabasic substrate, and calcareous outcrops, to 850 m alt.

SPECIMENS EXAMINED—PHILIPPINES. No locality. *Marche* B 119 (10 January 1885 FLO) (P!); *Vidal* 1447 (sine datum FRU) (L!). **LUZON:** Tayabas Lucena, *Merrill* 2888 (June 1903 FLO) (BM! K!); Isabela Prov., Palanan, Diguyo, 50 m, *Ridsdale, Dejan & Baquiran* ISU 93 (22 April 1991 FLO) (L! SAN!). **CAGAYAN PROV.:** *Bernardo* F.B. 27085 (October 1917 FRU) (A! K!). **MINDORO:** No locality. *Merritt* F.B. 8568 (January 1908 FRU) (SING!); Pinamalayan, *Ramos* Bur. Sci. 40890 (June 1922 FRU) (L!); Bongabon & Pinamalayan, *Maliwanag* 221 (5 February–5 April 1941 FLO) (PNH!); Baco, *Merrill* 1195 (January 1903 FLO) (K!), *Merrill* 1226 (January 1903 FLO) (A! K! SING! NY!), Baco river, *Mcgregor* 137 (April to May 1905 FLO) (K!); Paluan, *Ramos* Bur. Sci. 39474 (April 1921 FRU) (SING!); Mansalay, *Paniza* PNH 9426 (18 April 1948 FRU) (A!), Mansalay, Bo, Manaul, *Sulit* PNH 17140 (30 December 1952 FLO) (L!); N slope of Mt Alinyaban, 5 km SW of Puerto Galera, *Burley* 128 (24 April 1987 FLO) (K!), Puerto Galera Bay, *Santos* 5165 (16 April 1952 FLO) (L!), Mt Yagaw, 350 m, *Sulit & Conklin* PNH 16774 (28 November 1952 FRU) (L! PNH!). Golo Island, *Merrill* PNH 11540 (August 1922 FLO/FRU) (A! L! SING!). **PALAWAN:** No locality. *Agama* PNH 21618 (May 1914 FRU) (P!); *Curran* 3517 (January 1906 ST) (L!); *Escritor* Bur. Sci. 21571 (August 1913 ST) (P!); Aborlan, Sagpangan, along river, *Celestino & J. Ramos* PNH 23090 (16 May 1955 FLO) (L! PNH!); about 4 km off Aborlan-Inagawan main road, 50–100 m, *Soejarto* et al. 6608 (15 April 1989 FLO) (L!); Iraan Mountains, *Sulit* PNH 12549 (May–June 1950 FLO) (L!), Km 112, Pinagbatuan, *Mendoza & Espiritu* PNH 91187 (27 August 1964 FLO) (PNH!, SAN!); St. Paul's Bay, Cabayungan Village, 40 m, *Podzorski* SMHI 2081 (10 May 1984 FLO) (KEP! PNH! SAN!); Puerto Princesa, *c*. 36 km north of the city, 40 m, *sine coll*. SMHI 1063 (11 May 1984 FRU) (L!); Mt Pulgar, *Elmer* 13126 (April 1911 FRU) (L!); Irawan River valley head, 150 m *Ridsdale* SMHI 84 (15 March 1984 FLO) (L!), *Ridsdale* SMHI 98, (16 March 1984 FLO) (KEP! PNH! SAN!); Mt Beaufort, 150–170 m, *Ridsdale* SMHI 1689 (15 May 1984 FRU) (L!); N of Tagburos, *c*. km 17, N of Puerto Princessa, low forest on ultrabasic, *Ridsdale* 1096 (27 October 1985 FRU) (L!); *Vidal* 1447 (sine datum FRU) (L!), Babuyan, *Edano* 266 (16 March 1947 ST) (SING!), Km 36, Puerto Princesa to Roxas, 10 m, *Dransfield* SMHI 1237 (12 May 1984 FLO/FRU) (KEP! K! L! SAN!); Narra, Victoria Peaks, Trident Mining Company concession area, partially damaged steep-slope forest on ultrabasic soils, 300–450 m, *Ridsdale* SMHI 1809 (22 May 1984 FLO) (L!), 520 m, *Podzorski* SMHI 2091 (18 May 1984 FRU) (L!), 490–590 m, *Ridsdale* SMHI 1704 (17 May 1984 FRU) (L!); Mt Victoria, 850 m, *sine coll*. SMHI 1704A (17 May 1984 FRU) (L!); Bato-Bato, 10 km south of Narra, on side road from the main trunk Narra-Aboabo, 100 m,

Soejarto & Fernando 7384 (26 January 1991 FRU) (L!); Taytay: Lake Manguao, valley stream, *Ridsdale* SMHI 378 (9 April 1984 FLO/FRU) (L!); Ibangley, *Sagcal, Romero* et al. PPI 364 (31 January 1991 FLO) (L!); Bataraza, Sumbiling, Sitio Gamayon, Bulanjao Range, 50 m, *Soejarto & Madulid* 9052 (22 March 1995 FLO) (L!); Quezon Sitio Bongalon, *Cordero & Espiritu* PNH 91599 (13 May 1964 FRU) (L!); Busuanga Island, *Lopez* Bur. Sci. 41371 (September 1922 FRU) (L!), *Ramos* Bur. Sci. 41254 (September 1922 FLO) (L!); Culion Island, *Merrill* 612 (December 1902 FRU) (SING!), *Merrill* 669 (February 1903 FLO) (lectotype US!; isolectotypes A! NY! SING!); Bayas Island: *Copeland* 112 (January 1904 FRU) (P!). Sibuyan Island, Romblon, Magdiwang, Silum, Sitio Kulasian, *Reynoso, Fuentes & Rivers* PPI 14116 (20 February 1994 FRU) (L!). **PANAY:** *McGregor* Bur. Sci. 32195 (May–August 1918 FRU) (A!), *McGregor* Bur. Sci. 32392 (May–August 1918 ST) (SING!), *McGregor* Bur. Sci. 32584 (May–August 1918 FLO) (BO! SING!); Semirara Island, *Alcasid* PNH 6421 (March 1940 FLO) (A!); Buenavista, *Taleon* PNH 33906 (7 April 1955 FLO) (SAN! PNH!); Southwestern range of Mt Baloy, Laggit, *c*. 3 km SE of Lublub, 250–300 m, *Varadarajan, Reyoso, Fernando & Mosing* 1552 (8 August 1987 FRU) (K! L!). **NEGROS:** Canlaon National Park, Mt Canlaon, Wasay trail, *Stone* et al. PPI 6307 (23 March 1992 FLO) (L!); Mt Katugasan, *Edano* PNH 21784 (March 1954 FLO) (K! PNH! SING!). Guimaras Island, Buenavista, *Sulit* PNH 11787 (3 March 1950 FLO/FRU) (L! PNH! SING!). Paragua Island: 1500 ft, San Antonio Bay, dry slopes, *Merrill* 839 (February 1903 FLO) (K!). **BORNEO. SABAH.** No locality: *Governor Creagh* s.n. (August 1895 FLO) (K!). **Kudat:** *Boden-Kloss* SFN 19296 (16 September 1927 FRU) (SING!); near Kudat, *Meijer* SAN 19935 (10 September 1959 FLO) (L!, SAN!), *Meijer* SAN 19936 (10 September 1959 FRU) (SAN!); behind STM Telecom Station, *Kamaruddin & Sukup* KMS 2193 (11 March 1988 FRU) (SAN!); Bak bak, 200 ft [61 m], *Brand* SAN 30924 (17 July 1962 FRU) (SAN!); Loro F.R., 400 ft [122 m], *Tai* SAN 51081 (18 May 1965 FRU) (K!); Balambangan Island, W from base camp, 1.5 km from base camp, *Dolois* et al. SP 18462 (24 May 2003 FLO) (SNP!); Malawali Island: 50 ft, *Diwol & Awang* SAN 89971 (25 March 1979 FRU) (SAN!), 30 ft [9 m], *Fox* SAN 69505 (24 February 1970 FRU) (SAN!), Tanjong, *Sugau* et al. SAN 145703 (8 August 2002 FRU) (SAN!); Labuan F.R.: *Austin* A 1245 (29 February 1948 FLO) (KEP!, SING!), 50 m, *Diwol* SAN 135356 (8 September 1998 FLO/FRU) (K, L, KEP, SAN!), 50 ft [15 m], *Maidin* SH 7328 (7 June 1937 FRU) (KEP! L! SING!); Lajong F.R.: *Majawat* SAN 132063 (28 October 1991 FRU) (L! SAN! SAR!), *Leopold, Pius, Tangah & Soinin* SAN 145151 (16 October 2002 FLO/FRU) (SAN!). **Pitas:** Kg Payas, *George & Amin* SAN 121258 (12 May 1987 FRU) (KEP! SAN!). **Kota Kinabalu:** 200 ft [61 m], *Saikeh* SAN 67153 (10 February 1971 FRU) (SAN!); Bukit Padang, *Meijer* SAN 23827 (15 February 1961 FLO) (SAN!); Gaya Island:. *Haviland* 1438 (August 1892 FLO) (K!), 200 ft [61 m], *Aban* SAN 42017 (26 July 1966 FRU) (SAN!), 100 ft [31 m], *Ampuria* SAN 41307 (4 March 1964 FRU) (SAN!), *Berhaman, Meijer & Madani* SAN 134601 (30 June 1992 FRU) (SAN!), 300 ft [91 m], *Kanis & Kuripin* SAN 56117 (16 February 1966 FRU) (KEP! SAN!), south west, 100 ft [31 m], *Stone, Anderson & Leopold* SAN 86850 (15 April 1977 FRU) (KEP! SAN! SAR!), 150ft [46 m], *Wyatt-Smith* KEP 80296 (4 August 1954 FLO) (KEP! L!); Taman

Tunku Abdul Rahman, beach vegetation, *Pereira & Postar* JTP 698 (4 March 2000 FRU) (SAN!); 250 ft [72 m], *Mujin* SAN 33575 (8 April 1963 FRU) (SAN!), trail to highest point, *Rimi* et al. SP 7288 (23 March 1995 FRU) (SAN! SNP!), trail to Police Beach, *Dolois* et al. SP 9417 (20 May 1999 FRU) (SNP!), Police Beach trail to base camp, *Dolois* et al. SP 9508 (21 July 1999 FRU) (SAN! SNP!); Trail to Padang Point, *Rimi* et al. SP 7802 (25 June 1998 FRU) (SNP!); Manukan Island: *Rimi* et al. SP 7840 (24 June 1998 FLO) (SNP!), *Wong & Jamili* s.n. (1994 FLO/FRU) (SAN! SAR! SING!). **Beaufort:** Siaunggau Forest Reserve, *Diwol & Karim* SAN 78155 (31 May 1974 FRU) (SAN! SAR! SING!). **Kota Belud:** 500 m, *Gibbs* 4340 (16 May 1913 FLO) (K!), *Henderson* SFN 38959 (8 April 1950 FLO/FRU) (L! SING!). **Sandakan:** *Creagh* s.n. (August 1895 FLO) (K!), 100 m, *Foxworthy* 600 (January–March 1916 FLO) (PNH!), *Keith* 1215, 500 ft [152 m] (20 February 1929 FLO) (K!); COF's compound, 300 ft [91 m], cultivated, *Keith* S.H. 8862 (4 March 1938 FRU) (KEP! L! SING!), near catchment area, *Orolfo* 831 (3 May 1926 FRU) (SING!); 26 ft [8 m], *Ramos* 1195 (24 September 1920 FRU) (PNH!), *Wood* 741 (February–March 1920 FRU) (P!); behind Cheng Ming School, 300 ft., *Pereira* SAN 41096 (12 April 1964 FRU) (K! SAN!); Buli Sim Sim, 800 ft [244 m], *Keith* A 1506 (21 February 1948 FRU) (BKF! KEP! P! SING!); SW of Trig Buli Sim Sim, 500 ft [152 m], *Pereira* SAN 41052 (28 November 1963 FRU) (SAN!), 0.5 mile SW of Trig Buli Sim-Sim, 400 ft [122 m], *Pereira* SAN 41073 (8 December 1963 FRU) (SAN!); Sibuga Road, 200 ft [61 m], *Abu Bakar* SAN 27750 (15 November 1961 ST) (SAN!); Kebun China: *Ampon, Talip & Chow* SAN 68479 (25 November 1969 FRU) (SAN!), *Singh* SAN 34719 (25 April 1962 FRU) (SAN!), low undulating country, *Singh* SAN 39256 (13 August 1963 FRU) (SAN!); Batu Sapi, 90 ft [27 m], *Sayu* SAN 38822 (30 September 1963 FRU) (SAN!); Leila F.R.: *Charington* SAN 23664 (3 January 1961 FRU) (K, KEP! L, SAN! SAR!), 300 ft [91 m], *James* SAN 32552 (10 November 1962 FRU) (SAN! SAR!), *Kapis* SAN 34688 (10 March 1962 FRU) (KEP! L! SAN! SAR! SING!), *Kumin* SAN 58837 (12 November 1968 FRU) (SAN!), *Ogata* 10646 (4 August 1968 FRU) (L!), 91 ft [28 m], *Patrick & Jali* SAN 62547 (15 March 1968 FLO) (SAN! SING!), 100 ft [31 m], *Saikeh* SAN 65559 (14 May 1969 FRU) (SAN!), 350 ft [107 m], *Sam* SAN 28831 (28 February 1962 FLO) (KEP! SAN! SAR! SING!), 75 ft [23 m], *Sayu* SAN 38887 (10 August 1963 FRU) (SAN! SING!), water catchment area, *Stone* 6688 (17 March 1967 FLO) (KLU! L!); Jalan Kulam, 90 ft [27 m], *Kumin* SAN 73587 (12 August 1971 FRU) (SAN! SAR!), *Patrick* SAN 70208 (24 August 1970 FRU) (SAN! SAR!); Taman Datuk Chong Thien Vun, *Amin* SAN 95147 (22 April 1982 FRU) (KEP! SAN! SAR!), *Meijer* SAN 141282 (10 November 1994 FRU) (SAN!); Kabili-Sepilok F.R.: 0–70 m, *Kessler* SAN 118033 (23 February 1989 FLO) (SAN! L!), *Ridsdale* 2029 (21 May 1989 FRU) (L!); RP292–2, Plot 2×1, *Pereira & Diwol* JTP 398 (8 January 1997 ST) (SAN!), 30 m, *Pereira & Postar* JTP 581 (10 February 1999 FRU) (SAN!), *Pereira* et al. JTP 848 (May 2002 FRU) (SAN!); 150 m, *Wong & Puff* WKM 2109 (11 April 1993 FRU) (SAN!); Mile 13, Labuk Rd., 50 ft [15 m], *Fox* SAN 70682 (29 July 1970 FRU) (SAN!); Seguntor, 300 ft [91 m], *Postar* et al. SAN 141146 (9 September 2004 FRU) (SAN!). **Labuk Sugut:** Bonggaya, Bukit Obar, 100–190 m, *Sugau* et al. JBS 266 (23 September 1997 FRU) (L! SAN!); Beluran, near Kg Baba, ridge, 620 m, *Postar* et al. SAN 145528 (19

August 2004 FRU) (SAN!); Tawai F.R., Tawai Hill, 150–1310 m, *Sukup* SA 1946 (24 August–2 September 1991 FRU) (UKMB!), *Leopold & Goh* et al. SAN 133845 (26 October 1999 FRU) (SAN!).

4. *Rothmannia negrosensis* (Merr.) J.T. Pereira & Ridsdale, **comb. nov.**

Gardenia negrosensis Merr., Philipp. J. Sci., C 10 (1915) 111–112, pro parte quoad *Celestino* Bur. Sci. 7333, Merr., Enum. Philip. Fl. Pl. 3 (1923) 530, pro parte quoad *Ramos & Edaño* Bur. Sci. 31358 & *Cardona* FB 23868, excl. *Ramos & Edaño* Bur. Sci. 36787 (= *Rothmannia graciliflora*), *Sandique* FB 26596 *Wenzel* 641 (= *R. leytensis*). NEOTYPE (here designated): *Celestino* Bur. Sci. 7333, Philippines Negros, Cadiz (February–March 1909 FLO) (L!).

Treelet to small tree, 5 × 12 m high. Twigs sparsely velvety hairy, becoming glabrescent when old. Branch leaves typically in groups of 3's, each trifoliate group based on a distal node with only one leaf normally developed (the other vestigial or very much reduced in size), and the proximal node with a pair of normal leaves. Stipules broadly ovate-triangular, 2 × 4 mm long, 5 × 8 mm wide, sparsely to densely pubescent outside; apex acute to cuspidate, *c*. 1 mm long. Young **leaves** on shoot tips pubescent to velvety hairy on both sides. Mature leaves with petiole 0.5 × 1.3 cm long, 2 × 3 mm thick, velvety hairy to glabrescent; lamina broadly elliptic to ovate, to sometimes lanceolate, (11.5–)14 × 22 cm long, (4–)6 × 10 cm wide, upper surface glabrous, lower surface puberulous to velvety hairy; leaf base cuneate, subrounded to unequal; leaf apex acute to short-acuminate, acumen to *c*. 0.3 cm long; thin-coriaceous to chartaceous when dry; midrib on upper side flat, glabrous, on lower side raised, velvety hairy; secondary veins 7 × 13 pairs, on upper side flat, glabrous, on lower side slightly raised, velvety hairy; tertiary venation visible as simple connections between pairs of secondary veins. **Inflorescences:** peduncle 0.2 × 0.3 cm long, 2.5 × 4 mm thick, velvety hairy to tomentose; habit compact, with only 1 distinct branching order, rachis 0.2 × 0.5 cm long, primary branches along the rachis 1 pair, 0.2 × 0.5 cm long; bracts broadly ovate, 3 × 4 mm long, 3 × 5 mm wide, pubescent. Flowers 2 × 3 per cyme; pedicels subobsolete to 1 mm long, *c*. 1 mm thick; calyx tube 5 × 7 mm long, 3 × 6 mm wide, sparsely pubescent to velvety hairy, hairs appressed, surface visible outside; calyx limb cup-shaped to conical; calyx lobes 5 × 6, short-triangular, 0.5 × 1 mm long, pubescent to velvety hairy; corolla hypocrateriform, the tube 6 × 9 cm long, 6 × 10 mm wide at the throat, 2.5 × 3 mm wide at the base; non-speckled inside, outer surface glabrescent to scantily pubescent, inner surface with hairy zone covering part or all of the tube from the corolla mouth downwards; corolla lobes (5–)6 × 8, broadly ovate, 2.7 × 4.5 cm long, (1.5–)1.8 × 2.5 cm wide, outside scantily puberulous on the uncovered half of the lobes, inside glabrous; anthers (5–)6–8, fully included within the tube (inserted at the upper $^1/_3$), 9 × 12 mm long; style and stigma *c*. 60 × 90 mm long, included but reaching just below the corolla mouth and the level of or above the anthers, style smooth, glabrous, stigma 2-lobed.

Fruits globose, 5.5 × 6 cm long, 2.5 × 6 cm wide, glabrous, drying smooth; fruit wall *c*. 1 mm thick; peduncle to 0.2 cm long, *c*. 4 mm thick. Seeds slightly to much flattened and broadly ovate or suborbicular to narrowly triangular, 10–11 mm × 7–9 mm.

NOTES. Merrill (1915) in *Philipp. J. Sci., C* 10: 111, designated *Everett* FB 7255, collected from Negros, Philippines as the type of the basionym, *Gardenia negrosensis*. However, the holotype of this specimen was not located and is presumed destroyed in the Philippine National Herbarium during the Second World War (Van Steenis-Kruseman, 1950). The isotypes, if any, were also not located after search at the various relevant herbaria where Merrill's collections have been distributed, i.e., A, K, L, P, NY, SING, U, and US. Besides the type indicated by Merrill, he had also listed other specimens in the original description. One of the specimen, *Celestino* Bur. Sci. 7333 collected from Cadiz, Negros, around Feb–Mar 1909 and kept in Leiden, was available for study. Based on Article 9, paragraph 9.6 of the International Code of Botanical Nomenclature, Vienna Code (2006), *Celestina* Bur. Sci 7333 (L) is designated neotype.

This species is very similar to *R. merrillii*. However, *R. negrosensis* is consistently hairier than *R. merrillii* in a number of parts: the lower leaf surface (lamina) and its veins, inflorescence peduncle, bracts and calyx are velvety hairy to pubescent compared to *R. merrillii*, which is typically glabrous to scantily puberulous or only sparsely pubescent. The degree of hairiness in the inflorescences, calyces and leaves compared to *R. merrillii* have been pointed out by Merrill (1915). The outer surface of the corolla tube is typically glabrescent to scantily puberulous, but in *R. merrillii* is always glabrous. Another main distinguishing character of *R. negrosensis* is found in the corolla lobes, which are broader (typically 1.8–2.5 cm wide, but rarely less than 1.8 cm wide) than those of *R. merrillii* (typically 0.5–1 cm, rarely to 1.5 cm wide). In the original description of *Gardenia negrosensis*, the fruits were described as "subglobose to ovoid, up to 2.5 cm in diameter". However, it is uncertain if this fruit measurement referred to a mature fruit. The only fruiting specimen (with mature fruits) available for study has a larger diameter than was described in the original publication, i.e., 6 cm diameter.

DISTRIBUTION. Thus far only found in the Philippines (Negros, Mindoro and Palawan islands).

HABITAT. Recorded in lowland to hill forests, to 850 m alt.

SPECIMENS EXAMINED—PHILIPPINES. NEGROS: *Cordona* 23868 (February–April 1915 FLO) (A! SING!); Capiz Prov., Jamindan, *Ramos & Edano* Ramos 31358 (April–May 1918 FLO) (L!). Cadiz, *Celestino* 7333 (February–March 1909 FLO) (neotype L!). **MINDORO:** Calintaaan, Poypoy, Sitio Sapaton, Mt Iglit-Baco National Park, 850 m, *Barbon, Garcia* PPI 22603 (26 August 1996 FRU) (L!); Mt Halcon, *Edano* PNH 3512 (January–February 1948 FLO) (L! SING!), Mt Halcon, *Ramos & Edano* Ramos

40730 (March 1922 FLO) (A!); San Teodoro, Sibuang Camp, *Ridsdale* 857 (12 February 1985 FRU) (L!). Sibuyan Island, Capiz Prov., Mt Guinting-Guinting (Magallanes), *Elmer* 12246 (April 1910 FLO) (L!), Mt Guinting-Guinting, 300 m, *Madulid* 6897 (16 June 1987 FRU) (L!). **PALAWAN:** St. Paul's Bay, Caboyugan village, W side of the road, 50 m, *Ridsdale* SMHI 1649 (7 May 1984 FRU) (K! L!).

A New Species of *Rothmannia* from the Philippines

Rothmannia leytensis J.T. Pereira & Ridsdale, **sp. nov.** (Fig. 1)

TYPE: *Wenzel* 641, Philippines, Leyte (8 March 1914 FLO) (holotype A! isotype BM!).

This new species closely resembles *Rothmannia negrosensis* (Merr.) J.T. Pereira & Ridsdale, from which it differs by having leaves with tertiary venation developing a much-branched network between secondary veins; more flowers per cyme (i.e. 4–9); a glabrous corolla throat and smaller corolla lobes.

Gardenia negrosensis sensu Merr., Enum. Philip. Fl. Pl. 3 (1923) 530, pro parte quoad *Wenzel* 741, 641; *Sandique* 26596; non Merr. (1915).

Tree. Twigs velvety hairy when young, becoming sparsely pubescent to glabrescent when old. Branch leaves typically in groups of 3's, each trifoliate group based on a distal node with only one leaf normally developed (the other vestigial or very much reduced in size), and the proximal node with a pair of normal leaves. Stipules ovate-triangular, 5 × 7 mm long, 5 × 7 mm wide, sparsely pubescent to tomentose; apex acute to acuminate, *c*. 1 mm long. Young **leaves** on shoot tips velvety hairy on both sides. Mature leaves with petiole 0.1 × 0.6 cm long, 2 × 3 mm thick, pubescent to tomentose outside; lamina elliptic to obovate, 10 × 18 cm long, 4.5 × 8 cm wide, upper surface glabrous to glabrescent, lower surface sparsely pubescent; leaf base cuneate to symmetric; leaf apex acute to acuminate, acumen to 0.5 cm long; thin-coriaceous when dry; midrib on upper side flat to slightly raised, glabrous, on lower side raised, pubescent; secondary veins 7 × 10 pairs, on upper side flat to slightly sunken, glabrous, on lower side raised, pubescent; tertiary venation visible as a much-branched network between pairs of secondary veins. **Inflorescences:** peduncle 0.2 × 0.4 cm long, 2 × 3 mm thick, velvety hairy to tomentose; habit compact, with 1 × 2 distinct branching orders, rachis 0.5 × 1 cm long, primary branches along the rachis 1 × 2 pairs, 0.4 × 0.6 cm long; bracts ovate, 2 × 3 mm long, 2 × 2.5 mm long, densely pubescent. Flowers 4 × 9 per cyme; pedicels to *c*. 1 mm long, to *c*. 1 mm thick; calyx tube 5 × 7 mm long, 3 × 4.5 mm wide, densely tomentose, hairs appressed to suberect, surface visible; calyx limb cup-shaped; calyx lobes 5, triangular, 1 × 2.5 mm long, tomentose; corolla hypocrateriform, the tube 6–8.2 cm long, 4 × 5 mm wide at the throat, 1 × 2 mm wide at the base; non-speckled inside, outer surface sparsely pubescent, inner surface glabrous; corolla lobes 5,

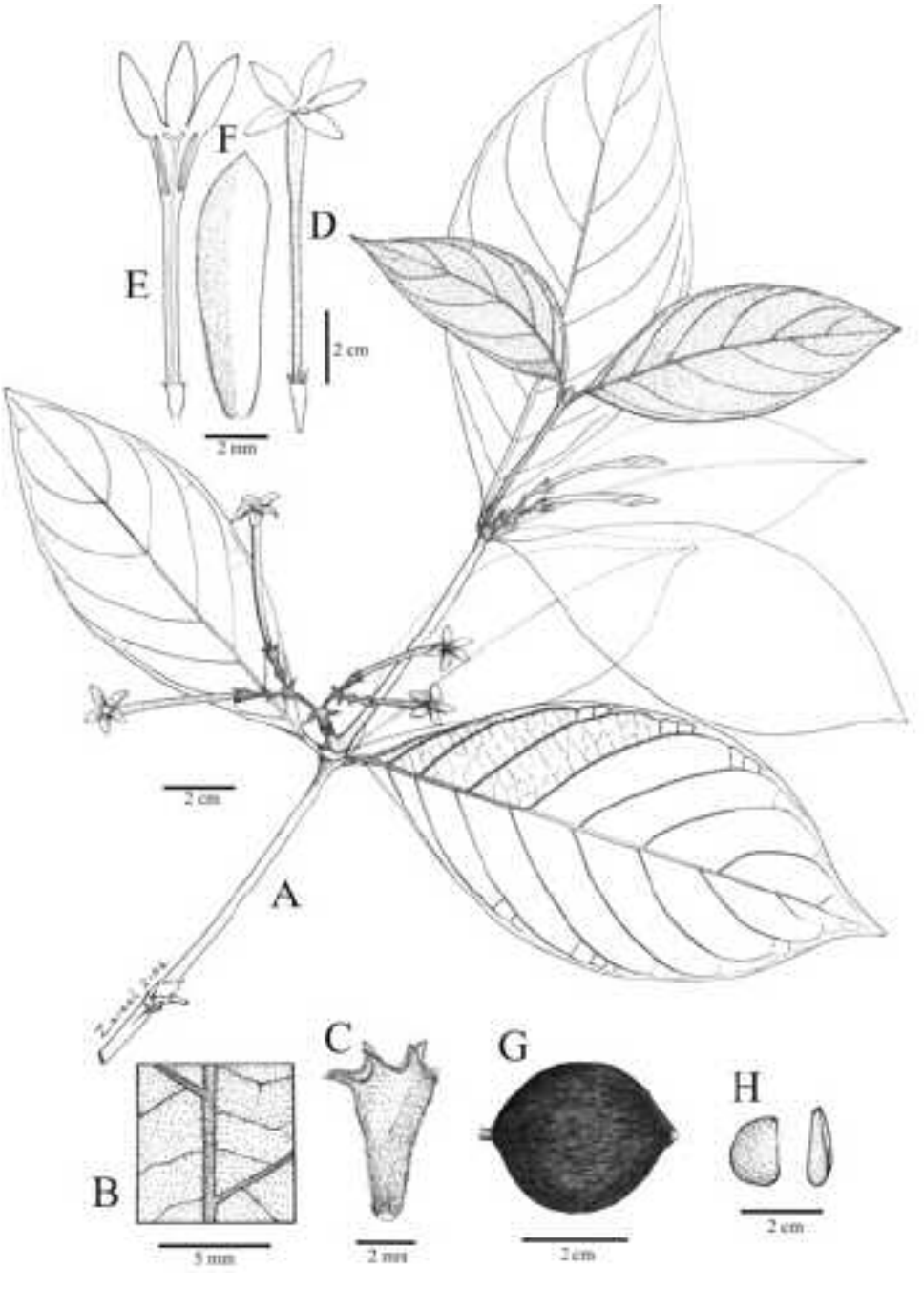

Fig. 1. *Rothmannia leytensis*. **A**. leafy branch with inflorescences. **B**. close-up of the lower leaf surface. **C**. outer surface of calyx tube. **D**. outer structure of flower. **E**. longitudinal section of flower. **F**. outer surface of corolla lobes. **G**. Fruit. **H**. seeds. **A–B** from *Sandique* 26596 (K), **C–F** from *Wenzel* 641 (BM), **G–H** from *Edano* 41727 (A & L).

elliptic to oblong, 1.2 × 2.5 cm long, 0.4 × 0.9 cm wide, outside pubescent on the uncovered half of the lobes, inside glabrous; anthers 5, fully included within the tube or only with tips slightly protruding (inserted at the upper 1/3), 11 × 14 mm long; style and stigma 60 × 85 mm long, included but reaching just below the corolla mouth and the level of or above the anthers, style smooth, glabrous. **Fruits** globose, 3 × 4 cm long, 3 × 4 cm wide, sparsely pubescent when young, becoming glabrous when mature, drying smooth; fruit wall *c*. 1 mm thick; peduncle 0.3 × 0.5 cm long, 3 × 4 mm thick. Seeds slightly to much flattened and broadly ovate or suborbicular, 9–11 mm × 7–8 mm.

NOTES. Vegetatively, this species is very closely allied to another species of *Rothmannia* in Borneo, but is distinguishable by its relatively shorter peduncle and longer style and stigma complex.

DISTRIBUTION. Endemic to the Philippines (Leyte).

SPECIMENS EXAMINED—PHILIPPINES: No locality. *Wenzel* 741 (30 May 1914 FRU) (BM!). **LEYTE:** *Wenzel* 641 (8 March 1914 FLO) (holotype A! isotype BM!); Mt Abucayan, *Edano* 41727 (February 1923 FRU) (A! L! SING!), *Sandique* 26596 (March 1917 FLO) (K!).

Endemic Species

With so little known about taxonomic relationships within *Rothmannia* s.l., and about the Philippine taxa in particular, it would be highly premature to attempt to form any biogeographical analysis. However, it is not surprising, given how the evolution of biological lineages respond to isolation (Wong 2011), that four out of five Philippine *Rothmannia* species are endemic to just one or very few islands in that archipelago. Of the several species, *R. merrillii* is the most widespread, distributed in the Philippines (East and South Luzon, Mindoro, Palawan, Negros, Panay and the smaller islands such as Sibuyan, Guimaras, Calamian group, Golo and Semirara) and also in Sabah (commonly in the north and northeastern part and also western part, up to Beaufort).

It is also not certain if departures from standard morphological traits are of special significance. For example, the corolla in Malesian *Rothmannia* is typically 5-merous, but in two Philippine taxa, *R. merrillii* and *R. negrosensis*, an increased number of (6–8) lobes is often encountered in the corolla.

ACKNOWLEDGEMENTS

We would like to acknowledge the Keepers and Curators of various herbaria for facilitating the study of specimens and allowing access of type specimen downloading from the

website: A, BK, BKF, BM, BO, BRI, BRUN, C, K, KEP, KLU, KUN, L, NY, OXF, P, PNH, SAR, SING, SNP, U, UC, UKMB, UPS, and US. As this paper formed part of the first author's doctoral thesis, the guidance, helpful and constructive criticisms by the first author's supervisors, Dr Wong Khoon Meng and Prof. Datin Lim Ah Lan are acknowledged. Prof. Christian Puff (WU); Dr W.J.J.O. de Wilde, Dr B.E.E. de Wilde-Duyfjes, and Dr Luc Willemse (L); Dr Todd Barkman and Jamie Seok-Hong Lim (Western Michigan State Uiversity); Dr Hubert Kurzweil and Serena Lee (SING); Dr Harry Wiriadinata (BO); Dr I.M. Idris (formerly Brunei Forestry Department); Dr Rogier de Kok, Dr Aaron Davis, Sally Dawson and Marie Briggs (K); Prof. Elmar Robbrecht (formerly Botanic Garden of Belgium, Meise); Dr Peter Wilke (E); Dr Saw Leng Guan, Dr E. Soepadmo, Dr Ruth Kiew, Dr Richard Chung, and Chan Yoke Mui (KEP); Patricia Loh, Rosli Halip and T. Ragunathan (University of Malaya); Tan Kui Sing (Lian Mong nursery); Lai Ee May (Penang Botanic Gardens); Maria L. Lardizabal (University Malaysia Sabah) and Puan Sri Susan Jalaludin, for their help in sourcing important literature references, material for the molecular or morphological studies; in assisting with some of the lab work and also providing some constructive comments on the thesis proper. Past and present staff members of the Sandakan Herbarium are also greatly acknowledged for their assistance in the field and in the herbarium — John Sugau, Suzana Sabran, Postar Miun, Ubaldus Majawal, Markus Gumbilil, Pius Gubilil, Leopold Madani, Diwol Sundaling, Junaidi Pokok and Rovina Intung. Mr Zainal Mustafa kindly prepared the line drawing.

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